

REPORT ON WATER MEASUREMENTS FOR SUMMER OF 1957

Cedar City Area

North Field Canal

An attempt was made to measure the seepage loss in a section 3400' long from the point of diversion at Coal Creek to the point where it divides into 3 lateral known as, the "East Extension", the "Melling Ditch", and the "Road Ditch". This section of ditch is quite typical of the ditches near Cedar City. It is built in alluvial fill soil that is well graded and quite well silted tight from flood waters of many years.

There were 8 measurements made, five of them by current meter and 3 by means of 2' rectangular weir. The results are tabulated and plotted on the accompanying sheets.

The canal banks have a fairly heavy growth of cottonwood trees, willows and weeds. The parshall flume at the diversion is quite accurate during high water but has too much surging in low water to be of much value. It should have a measuring well.

Union Field

The section of the Union Field studied was 6700' long and extended from the point of diversion to the beginning of the concrete lining. The first half of the section was in alluvial fill and the banks were over grown with willows, cottonwood trees and weeds. The last half of the section was around a hillside of light colored clay with imbedded boulders. The formation was very water tight and didn't seep enough water to support hardly any growth.

There were 13 tests made, 9 with a current meter and 4 with a 2' rectangular weir. The results are tabulated and plotted on the following sheets.

An obstruction had to be built at the lower end of the section to measure it with a weir and it was not practical to leave this obstruction after the beginning of the flood season which accounts for there ^{being} ~~being~~ no measurements after August 6. The parshall flume at the point of diversion is not properly installed to give accurate readings.

Bulldog Ditch

The Bulldog irrigators use an **old** natural channel and seldom if ever have to do any cleaning. The only restrictions to the amount it will carry are the parshall flume at the diversion and the first few 100' of ditch. About the only growth along its banks is a little grass in the early spring because it has only an early high water right. Its parshall flume like those of the North Field and Union Field has too much surge to be accurate. Only three tests were obtained on this ditch before the high water was gone. They are tabulated on the accompanying sheets.

North Field Laterals

The North Field has 3 lateral but one of them, the Road Ditch, has 2 branches. The east extension is concrete lined except for the first mile. That first mile parallels the Melling Ditch with only a few feet between them. One ditch would reduce seepage and transpiration losses, cleaning costs, land used in right of ways, and all general expenses.

Like wise the two branches of the road ditch are only spaced 40 rods apart and parallel each other for about two miles.

These ditches are representative of the small ditches in the Cedar City area. They are well cleaned in the spring but before fall become badly overgrown with grass and weeds which retard the water and increase the losses.

Pinto Creek

Pinto Creek is used at Pinto for one week and then all the stream expect 1/4 c.f.s which is diverted at Pinto for culinary purposes is allowed to flow into the New Castle reservoir.

This summer I have only seen one family live at Pinto for a period of one week and they hauled their drinking water from a spring. It would therefore appear that this 1/4 c.f.s is wasted.

During the week when the stream is diverted above Pinto there is some water raises in the creek between Pinto and the New Castle reservoir. This is diverted and used by four farms along the creek and the small amount that raises below the last farm runs into the reservoir. These streams are only about .25 cfs. and are very poorly attended. They are often moved only once a week and result in much waste. In fact, since no families live at Pinto the main stream is often poorly attended when diverted at Pinto. Following is a table showing the amount of water in the creek at various places and times this summer.

Date	Amount in the creek below the pinto Diversion c.f.s.	Amount diverted at the Knell Ranch c.f.s	Amount diverted at the Platt Ranch c.f.s.	Amount diverted at the Tullis Ranch. c.f.s.	Amount diverted at harrison Ranch. c.f.s.	Amount flowing in to the reservoir. c.f.s.	gain c.f.s.
July 26	0	.19	50	.35	.21	.20	1.45
July 30	1.01	.30	0	0	0	1.47	.76
Aug. 13	.85	.27	0	0	.76	.15	.33
Aug. 19	0	.13	0	.47	.25	.22	1.07
Aug. 22	0	.13	0	.67	.23	.12	1.15
Aug. 27	.80	.19	0	0	0	0.96	.35
Sept 13	1.02	.15	0	0	0	1.03	.16

It appears from the chart that the gain is greater when the main stream is diverted at Pinto and the spring water is diverted at each ranch but the water is then so inefficiently applied that the net gain is very small.

The seepage loss of the culinary stream is shown on the report of "small streams." Only one good test was obtained on the main stream when diverted at Pinto and that ran 6.82 % loss per mile on a stream of 1.38 c.f.s.

Little Pinto

By Aug. 13, the Little Pinto stream was not reaching the Page Ranch except for a short time during the night. Below this ranch a little water raised in the channel and was diverted into a ditch and run 1.6 miles into a reservoir. When a sufficient amount had collected it was released and used to irrigate the Hulet farm. The stream would not have reached the farm if it had not first been reservoired.

Pleasant Creek

The flows at Pleasant Creek are tabulated on an accompanying sheet. All the ranches appeared to have all the water needed this year. There will be storage water held over in the Bowns Reservoir this year.

There has been nothing done at the Pleasant Creek Ranch this year except to plant 5 acres of grain which died from drouth.

At the Notom Ranch there has been alot of water lost. Most of it was due to deep seepage which came out of the hillside and ran down the creek making the loss very noticeable.

At the Sandy Ranch they have completed the underground sprinkling system on 50 acres and are preparing to install pipe on approximately 500 acres more. The production has not been high but it appears that improvements are being made as fast as conditions will permit. The only waste water that

has been visable there was on one occasion when they were flushing the sand from their head ditches.

Boulder Creek and Deer Creek

A schematic sketch of the Boulder Distribution System with the measurements in c.f.s. is included for each date the streams were measured. In general the ditches in the Boulder area are poorly cleaned and will not carry the water without loss.

Flow Meter Measurements

In the Beryl area they do not have an active pumping association, but Bruno Biasi is President of a purchasing organization which is the most active organization they have. I spent quite a little time with Mr. Biasi and he was very cooperative. He feels that 3 A.F. is plenty of water and said he had been at every hearing to fight for the fellows who were staying home complaining. Now he is going to stay home and farm with 3 Ac. ft. He asked me to go over the matter with Mr. Otto Fife who is their purchasing agent. Mr. Fife wants the name and address of the factory representative. Mr. Fife will arrange a meeting between the parties concerned.

Few wells in the Beryl area have discharge pipes small enough for this meter, but as a demonstration, I put the meter on the well of Neal Bracken. He irrigated border strips of barley 380' long and 30' wide. He applied from 6.85" to 8.18" depth.

On the alfalfa pasture the strips were 521' long and 35' wide. When irrigating 2 at a time he applied 7.88" and when irrigating one at a time 6.52"

Will you please see that he get this?

The pasture was adjacent to the pump and therefore, had very little loss in head ditches. The barley patch was about 1000' away and the best we could estimate from the time required to fill the ditch and the length of flow after the pump was turned off there was 27.3% lost in the head ditch. A number of farmers were contacted and all appeared willing to cooperate but will need proding if the meters are installed in time for next season.

In the Milford area we contacted Mr. Tolley who is Secretary of the ~~Social~~ S.C.S. Group and very active in the pumpers association. He appeared to be more cooperative and reasonable upon our second visit. We also contacted Mr. Leo Myer, President of the S.C.S. Group and he promised to discuss the matter of meters at their next meeting and see what their group wanted to do regarding ordering meters.

As a demonstration the meter was installed on the well of Mr. Griffiths who was irrigating fall barley. He definitely traded water for labor and regulated the water only at 12 hr. intervals. He applied 13" of water and felt that was plenty good as 2 more irrigations next spring would mature the crop and stay close to the allowable 3 ac. ft. I spent some time trying to show him the folly of his thinking, but he had no great desire to learn. A goodly number of farmers were contacted in each area and I feel some good was done, but it will require some more contacts early next spring if the meters are installed on time.

After one day in the Beryl area with the county agent, he is more in favor of the meters. My impression was that the farmers in the Beryl area are more able to purchase the meters and are much more cooperative.